Africa's re-enchantment with big infrastructure

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White elephants dancing in virtuous circles?

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Abstract: *Since the mid-1990s, Africa has experienced a re-enchantment with the transformative effects of investments in ports, roads, railways and, to some extent, airports. This is reflected in where the World Bank and the African Development Bank place their money, as well as in the heightened profile of China, which is the largest single external investor in infrastructure. This chapter begins by mapping the different regional patterns before addressing the specific question of how far spending has been driven by the requirements of the extractive industries. Whereas petroleum and diamonds are associated with enclave dynamics and infrastructure that is dedicated to extraction – notably pipelines and airports – most mining relies on road and rail that is shared with other users. The second part of the chapter addresses the impact of infrastructural spending on state capacity and whether it is sustainable in the current economic climate. What is often not appreciated is that African governments account for the greatest investments. In effect, this spending comes at the expense of the provision of other public goods. The argument is that while the agenda might appear to be set by external actors, African governments have been adept at retaining control. Public–private partnerships have been much more limited than the World Bank would prefer. Although global logistics companies have played a role in the construction and operation of many seaports, African governments have assigned overall control to semi-autonomous port authorities, which have shown their capacity to flex their muscles. All of this casts doubt on the contention that neoliberal governance involves an attenuation of state sovereignty.*

When it comes to Africa, the capacity of international organizations to champion that which they previously disavowed is nothing less than remarkable. At the present time, all the principal actors – African governments, corporate investors and the international agencies themselves – are fixated upon the transformative potentialities of infrastructure, by which they mostly mean 'big infrastructure'. This is intriguing, given that Africa has been through previous iterations of much the same thing. During the late 1940s and 1950s, when the modern idea of development was born, overwhelming emphasis was placed upon the catalytic effects of infrastructure, and to that end unprecedented levels of investment were channelled into the construction of ports, roads and railways (Hoyle and Hilling 1970). When the results proved disappointing, enthusiasm waned; and when the money dried up in the late 1970s, a steady process of attrition ensued. The decline of Africa's railway systems is merely the most striking example of a technology that had come to be regarded as too expensive and unsuited to African requirements. A residual scepticism about big infrastructure remained firmly entrenched during the heights of structural adjustment. Hence, the *Berg Report*, for example, devoted an entire chapter to agriculture, but a modest ten pages to transport and communications, which were subsumed within a chapter entitled 'Other Productive Sectors' that bundled together industry, mining and energy. It specifically advised caution with respect to 'large-scale capital-intensive projects' and proposed that the accent should be placed on the maintenance and renewal of existing roads (World Bank 1981, 106). World Bank documents today devote most of their attention to championing substantial new investments in transport and energy, which are regarded as the drivers of economic change. Clearly, there has been nothing less than a paradigm shift and this is reflected in the places where international agencies place their

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money.[2] If economic development has become a kind of modern religion, infrastructural investment is once again its most potent fetish.

In this chapter, I set out to do two things. First, I address the question of how far these investments are driven by the requirements of the extractive industries. This has a bearing on the likely consequences of lower commodity prices for the more ambitious plans to 'respace' the African continent in the future (Engel and Nugent 2010). In the second section, I consider some implications for the institutional capacity of African states and raise the question of whether the current patterns are sustainable.

The big fix: regional variations in infrastructural expenditure patterns

The re-enchantment with infrastructure arises out of a conjuncture of a number of elements that came into play around the start of the millennium. The first is the rediscovery of regional integration as a platform on which to build complementarities between African economies (Bach 2016). Whereas economic policies after independence tended to mirror each other, and to be competitive in their effects, regional integration today aims to create a common market for goods produced locally as well as more advantageous conditions for Africa's integration into the global marketplace. This is clearly an imperative for the countries with large mining sectors as well as for landlocked states – and all the more so for those that fall into both categories, such as Zambia and Niger. But the expectation is that regional integration will also grow the market for countries with substantial manufacturing sectors (like Nigeria) or with potential for exporting their agricultural surpluses (like Uganda). Within this schema, transport corridors are conceived of as the veins and arteries that circulate goods between coastal ports, urban markets and mining hubs. The second factor is a decade of sustained economic growth underpinned by high primary commodity prices. This led to renewed interest in Africa on the part of global corporations, and emboldened African leaders to anticipate a qualitative transformation on the back of targeted investments. It is no exaggeration to say that the notion of a 'big push' (Killick 1978), which was current in development thinking in the early 1960s, is back in vogue, if not in name. The third element is the rapid elaboration of new information technologies that create the 'smart' systems that potentially enable big infrastructure, for example at seaports, to be deployed in much more efficient ways. Finally, there is a shift in the consensus towards what is sometimes called 'neoliberal governance', in which the boundary between the public and private domains has become blurred (Ferguson 2006; Chalfin 2010). To some extent, this represents a hangover from the era of structural adjustment, but it also reflects a curious convergence of governance trends in Europe and the mixture of public and private interests in China. Given that the European (EU) and China are amongst the most important players in the infrastructural game, this context clearly matters. All of this has enabled some of the grander visions to seem credible in areas where state-led development fell short in the past. These four trends reinforce each other in multiple ways to the point that they can often seem like a single package. However, each of these elements embodies its own internal tensions, and to that extent the relationships between them are also inherently unstable.

It is a recurring theme in policy documents, most notably those produced by the World Bank and the African Development Bank (AfDB), that what is holding Africa back is its severe infrastructural deficit. A particular emphasis is placed on seaports, which are characterized as chronically congested and lacking overall capacity. The problem is attributed to a combination of geographical circumstances, especially the scarcity of natural deep-water harbours, and historical legacies arising from decades of economic failure. However, it is also attributed to

[2] For a graph that plots the shift in World Bank investments in transport infrastructure, see http://projects.worldbank.org/search?lang=en&searchTerm=infrastructure, accessed 28 December 2017.

the more heartening reality that in the first decade of the new millennium the volume of trade passing through Africa's ports tripled (African Development Bank 2010, 32). The existing seaports were only constructed to handle general cargo and were unable to accommodate the latest generation of container ships, the so-called 'Panamax' and 'Post-Panamax' vessels. Port investments across Africa are largely about bridging the gap with other parts of the maritime world.

The cost of transporting goods is commonly said to be the most serious constraint upon Africa's trade with the rest of the globe. The greatest single factor is the amount of time that it takes for ships to be turned around. A report from 2005 estimated that the time spent on average in East Asian ports amounted to 20 per cent of the total transport time, whereas in Africa this rose to as much as 80 per cent (African Development Bank 2010, 48). The 'dwell time' in African ports ranged from 4 days in Durban and 5 days in Mombasa to 25 days in Tema and 28 days in Port Sudan. The costs also varied wildly with Luanda recording an average handling cost of $320 per TEU (twenty-foot equivalent unit) by comparison with an average of $90 in Mombasa and $121 in Durban (African Development Bank 2010, 47). In addition, the neglect of the continent's rail network has meant that it has not always been possible to follow the shortest route to the coast. Because more traffic is forced onto the roads as a consequence, this contributes to the wider problems of congestion and decay. The fact that most Zambian copper can no longer be dispatched along the Tanzania–Zambia railway (instead, it is transported by truck to Durban and Dar es Salaam) is considered symptomatic of the wider problem (Raballand and Whitworth 2014, 4). In colonial East Africa, an earlier version of the regional integration agenda placed overwhelming emphasis on the railway from the port of Mombasa to the Uganda border. Today, the Rift Valley Railway carries only 5 per cent of the freight from Mombasa's port, although it is currently in the process of being upgraded (World Bank 2014, 82). Finally, one should mention the parlous state of some of Africa's main roads, which represent continental 'highways' in name only. Along the Abidjan–Lagos Corridor (ALCO), for example, only 51 per cent of the roads were classed as 'good' in 2010, with 28 per cent categorized as 'fair' and 21 per cent as 'poor'. Meanwhile, along the Cotonou–Niamey Corridor, as many as 42 per cent of the roads were classed as 'poor' (Deen-Swarray *et al*. 2014, 45).

The shifting configuration of financing is based on the premise that the infrastructural deficit is beyond the financial capacities of African governments, even when they pool their resources. The AfDB has, for example, taken the lead in financing the Trans-African Highway Project, which is a priority of the African Union. The World Bank has greatly increased its own commitments to transport infrastructure, abandoning the scepticism of the relatively recent past. This in part reflects a retreat from the narrowly economistic prescriptions of the structural adjustment era, which produced disappointing results across much of Africa. In addition, development banks, bilateral donors and the private sector all play important roles. Along any given transport corridor, there is typically a multiplicity of projects that bring together different combinations of actors, while the usual corporate suspects, such as Bolloré, turn up in several locations at once. There is a certain structural logic that favours big infrastructure, for the reason that it is often easier for African governments to access external funds to cover large investments than to find money for more modest projects. For politicians whose reputations rest on their ability to point towards 'development', there is an additional incentive to favour big infrastructure because it tends to be highly visible. The electoral cycle plays its own part as incumbent politicians feel the need to be seen commissioning or championing new projects in advance of going to the polls. Regimes may also seek to secure political support by devolving some of the work to local contractors.

Let us now consider the patterns of infrastructural expenditure in more detail before assessing the relative importance of the various actors. The Infrastructure Consortium for Africa (ICA),

which brings together the G8 countries, the World Bank, the EU, the AfDB and some others, publishes an annual report on infrastructural financing. It distinguishes between investments in transport, energy, water and information and communications technologies (ICT). In 2013, the report revealed that ICA members invested considerably more in energy than transport infrastructure, whereas other external investors leaned the other way (Infrastructure Consortium for Africa 2014). In 2015, energy and transport accounted for 43.5 per cent and 34.1 per cent of ICA financing, respectively (Infrastructure Consortium for Africa 2016, 24). However, if the investments in energy in South Africa and North Africa are removed from the equation, transport comes out ahead across the other regions of Africa. It will come as little surprise to learn that China was by the far the largest bilateral investor, accounting for 25 per cent of all infrastructural financing in 2015, or that it has specifically targeted transport infrastructure. But the data also highlights two other patterns that are worthy of note. First, private investment in infrastructure has been unevenly distributed, with a strong bias towards energy in South Africa, but it has contributed far less than the ICA and other public investors – in fact, a mere 8.9 per cent of the total in 2015 (Infrastructure Consortium for Africa 2016, 15). Second, African governments finance slightly more than half of the expenditure commitments, typically placing their own money into transport rather than energy. In addition, African governments incur the obligations that come with external lending. In 2015, as much as 72.9 per cent, or $14.25 billion, of ICA funding commitments were in the form of loans, whereas grants accounted for only $2.35 billion and 'blended' funding a mere $1.10 billion (Infrastructure Consortium for Africa 2016, 26). This suggests that African states are far more engaged with the infrastructural 'big push' than is commonly assumed.

Table 1.1 Infrastructure commitments by sector and source, 2015 ($ million)

Source	*Transport*	*Water*	*Energy*	*ICT*	*Multi-sector*	*Other*	*Total*
ICA	6,770.9	3,184.3	8,635.0	626.0	634.4	–	19,840.7
ACG	2,071.7	377.8	1,554.9	16.5	391.5	–	4,412.4
RDBs	173.7	47.6	95.0	76.4	25.5	–	418.2
China & others	9,932.2	268.4	10,747.5	1,032.1	–	–	21,980.1
Non-ICA Europe	345.5	–	458.2	72.5	–	–	876.2
African governments	15,278.3	4,124.8	5,692.0	705.2	1,164.7	1,1167.3	28,402.3
Private	113.5	114.0	7,214.8	–	–	–	7,442.3
Total	34,658.8	8,116.8	34,667.5	2,518.8	2,216.1	1,167.3	83,372.3

Notes: These figures refer to commitments rather than disbursements. ACG = Arab Coordination Group, RDB = regional development banks.

Source: Infrastructure Consortium for Africa 2016, 89

A separate report by Deloitte (2015), which deals with recent trends in large construction projects valued at over $50 million, tells a broadly similar story. However, it uses a different breakdown of expenditure and only deals with newly activated projects. It reveals that transport gained ground relative to energy between 2013 and 2015 in terms of the number of projects, and accounted for substantially more in terms of the total value of expenditure. Whereas mining investment fell back, the oil and gas sector underwent significant growth. The report is also of interest for what it reveals about public–private partnerships (PPPs), which the World Bank has been especially keen to promote (World Bank 2014). It revealed that between 2013 and 2015, public investment projects increased from 181 to 205, private projects fell from 127 to 57, and PPPs increased from 14 to 39. The uptake of PPPs seems, therefore, to have come at the expense of private projects rather than public financing. Somewhat surprisingly, PPPs have had the greatest purchase in West Africa, followed by Southern Africa (Deloitte 2015, 5–6). This data therefore indicates that the progress in implementing PPPs has been incremental as well as uneven.

Table 1.2 Construction projects in 2015 valued at above $50 million

Type of project	*Value of projects* ($ million)	*Number*	*Percentage of all projects (%)*
Education	131	2	0.66
Energy and power	95,555	85	28.24
Healthcare	561	4	1.33
Manufacturing	2,000	1	0.33
Mining	39,776	22	7.31
Oil and gas	81,558	18	5.98
Real estate	12,522	18	5.98
Shipping and ports	1,035	1	0.33
Social development	3,305	12	3.99
Telecommunications	567	2	0.66
Transport*	131,664	111	36.88
Water	6,736	25	8.31
Total	375,410	301	100

Note: * A considerable amount of port development is included within the 'Transport' category rather than under 'Shipping and ports'.

Source: Adapted from Deloitte 2015, 5

This brings us to the question of how far resource extraction is shaping the pattern of infrastructural investment. Some of the extractive industries clearly make their own investments, but they also depend on connective infrastructure such as ports, roads and railways. Diamonds are mostly flown out, but mining equipment has to be brought in the hard way (African Development Bank 2010, 10). In the case of oil that is produced away from the coastline, there is a preference these days for underground pipelines that are linked to dedicated oil terminals at the coast. To that extent, oil does not merely create an enclave effect where it is drilled, but also in the locations from where it is shipped. The same applies perforce to natural gas. By contrast, other mining operations tend to rely on infrastructure that is shared with other users. Historically, one form of subsidy to the mining industry resided in the construction of railways followed by the creation of monopolies that forced all transporters onto the tracks. By spreading the cost among multiple users, the freight charges to the mining sector were reduced. These days, such monopolies are frowned upon, which means that the railways have to attract willing customers by offering faster and more reliable services. One argument in favour of railways is that they reduce wear and tear on the roads, which ought to benefit those engaged in the haulage of other commodities. Whether this is optimal for the mining industry depends on the nature of what is being transported and other associated costs. In many parts of the world, copper is transported by rail, and it is likely that, all else being equal, this would be the preferred mode among mining companies in Central Africa. But because the real cost of road maintenance is not borne by those who transport copper, and because the labour of truck-drivers is so cheap,[3] there is presently little incentive to alter existing practices. Aside from railways, ease of shipment through the seaports is of fundamental importance to the mining industry, especially in this era of containerization. This brings us back to the cost and speed of handling through the various ports.

In practice, the extractive industries carry very different weight in the various regions. This is reflected in the design of the transport corridors that the regional economic communities (RECs) have been promoting for some years now (Söderbaum and Taylor 2008). In the case of East Africa, the discovery of oil and gas deposits has brought an appreciation of the need for new pipeline projects, but as of 2015 most of the work was no more than incipient. The main focus of the East African Community (EAC) has been on removing trade barriers within the designated Single Customs Territory (SCT) and attempting to facilitate regional access to global markets. For landlocked countries such as Rwanda, Burundi and Uganda, the ports of Mombasa and Dar es Salaam are the entry points for petroleum imports (all of which are currently transported by road) and manufactured goods (which come largely from Asia). The current focus is on making substantial improvements to existing ports as well as constructing some entirely new ones; upgrading rail links; and improving the roads along the corridors. Given that the EAC has few minerals outside of Tanzania, it cannot be said that either the Northern Corridor from Mombasa or the Central Corridor through Dar es Salaam is driven by an extractive logic. It is revealing that the most expensive construction projects in 2015, in order of importance, were the East African Railway, the new port development at Bagamoyo, the Grand Ethiopian Renaissance Dam, the Djibouti–Ethiopia Railway and the Mombasa–

[3] This is an aspect that Wolfgang Zeller has been considering as part of the AFRIGOS project.

Malaba Railway. The only straightforwardly extractive investment was a railway to transport potash in northern Ethiopia.

In West Africa, the picture is more mixed. The Economic Community of West African States (ECOWAS) has indicated that its priority is to promote ALCO, with a view to exploiting the possible agglomeration effects of Africa's most densely populated zone in a belt that stretches along the coastline from Lagos to Accra (World Bank 2009; OECD/SWAC 2017, 134–136). There are limited mineral resources along the coastal corridor, and the expectation is that most of the traffic will involve goods produced within the region, including manufactures and agricultural produce. At present, the most visible item of trade is Nigerian cement, which has found a ready market in Ghana. The expansion of the ports that are dotted along the coastline, notably at Abidjan, Tema, Lomé and Cotonou, is intended to facilitate access to the global market for the Sahelian countries. Burkina Faso depends on the road corridors through Ghana and Togo for many of its manufactured imports, whereas the mining industry makes use of the Abidjan–Ouagadougou railway. In 2014, when the existing management contract expired, the major stake in the operation of the railway was taken on by Pan-African Minerals, which announced plans to extend the line to its manganese mine in north-eastern Burkina Faso.[4] In West Africa, some of the largest infrastructural investments involved extractive industries. Oil and gas projects, such as the Nigeria–Algeria pipeline project, accounted for five of the ten most expensive projects in the region in 2015. However, the Simandou iron-ore project in Guinea topped the list, while a bauxite/alumina project was ranked fifth. The construction of a partially new rail link between Niamey (Niger) and Cotonou (Benin), which was assigned to Bolloré, is another example of the linkage between mining (in this case uranium) and railway investments in the Sahel, although work ground to a halt following a legal challenge in Benin in 2015.

In West–Central Africa, the picture is different again. Here, the overall level of infrastructural investment has been considerably smaller, but it has certainly been pursued with a view to facilitating mineral exports. The Kribi–Edea railway, which is geared to the development of iron-ore and bauxite exports from Cameroon, was the largest project in the region in 2015. There has also been major investment in seaports, especially at Kribi. However, the many delays to the expansion of the port have meant that the transport corridor to neighbouring countries is poorly developed.[5]

In Southern Africa, which was the largest recipient of new investment by some margin, there has been a much greater focus on power generation, some of which serves the mining industry but is clearly also driven by rising consumer demand. By far the largest construction project in Southern Africa in 2015, at a cost of $22.5 billion, was the redevelopment of the port of Durban. Already the continent's second-busiest port, Durban hopes to quadruple its capacity in the coming years. Part of the rationale is that the copper industries of Zambia and the DRC will continue to patronize the port, but it is also intended to cater to South Africa's own requirements.

Finally, there is much less evidence of an extractive logic at work in North Africa, which accounted for only around 10 per cent of all new investments. In 2015, the largest project was the Tangier–Casablanca high-speed rail project in Morocco, which is oriented towards passenger traffic. The other major investments were concerned with power generation of various kinds, including the development of the Nador West Port in Morocco, which is connected to plans for a thermal energy project. The other rationale behind this port

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[4] See www.reuters.com/article/ivorycoast-burkina-railway/burkina-ivory-coast-hand-control-of-railway-to-mining-firm-pm-idUSL5N0L70J720140204, accessed 28 December 2017.

[5] I am grateful to Jose-Maria Muñoz for his insights into the reasons why progress at Kribi has been so slow.

development is that it will enable Morocco to bid for cargo traffic in the western Mediterranean.[6]

In general, therefore, we may conclude that infrastructural investments are only partially justified with reference to the requirements of the mining industry, whereas the more specific needs of the oil and gas sectors are often prioritized. In East Africa, the main transport corridors are intended to facilitate the flow of Asian manufactures and petroleum imports, and to increase regional trade. In West Africa, the case for ALCO has been advanced on the basis of developing the internal market, whereas the corridors that run from the ports to the Sahelian countries are intended to facilitate both the import of consumer goods and the export of minerals. In West–Central Africa and Southern Africa, mining logics play a more significant role. In North Africa, however, the extractive industries are confined to a handful of oil and gas projects. Given this highly variegated picture, it is clearly very difficult to generalize for the continent as a whole, but the overall picture is that 'internal' needs – for cheap electricity, faster travel and cheaper consumer goods – are at least as important as 'external' drivers. In the context of less favourable international prices for minerals, one would expect the relative balance of investments to shift – as indeed it has in recent years –albeit without significant effect on the overall momentum behind infrastructural investments. China's interests are not confined to the extractive industries, and one would expect its broader interest in infrastructure to continue for as long as it is able to sustain its own growth trajectory. As for the development banks, they exhibit an undiminished enthusiasm for investments in big infrastructure and this is unlikely to change any time soon. A retreat from big infrastructure would require a paradigm shift, and this is not currently on the horizon.

Infrastructure and state capacities

When we consider the impact of all this investment upon state capacities, a fundamental distinction needs to be drawn between the ability of African governments to shape the developmental agenda and their capacity to complete administrative functions with a modicum of efficiency. A moment's reflection would indicate that these are not necessarily congruent, because the assertion of (multi-)state ownership over the project for respacing Africa might well be associated with greater bureaucratic confusion.

As far as the first criterion is concerned, it sometimes seems as if the agenda is being driven by external actors and that African governments simply tag along. But much as statist versions of development in the 1960s and 1970s were hegemonic, so current versions of development through 'infrastructuring' are based on a consensus that is shared by all the principal actors – ranging from the World Bank, to Bolloré, to African governments themselves. I have already indicated that the latter have manifested a high level of commitment by financing much of the infrastructure, but it is also noteworthy that these states have retained a considerable measure of control over the way in which infrastructure is rolled out and operationalized. An obvious place to start is with corridor management, which is a complex field because it necessarily involves government agencies across multiple countries as well as non-state agencies operating at the regional and national levels. The task of coordinating all of this complexity should not be underestimated.

The corridors themselves are constituted in very different ways. The Walvis Bay Corridor Group, which is responsible for four transport corridors, has made a formal attempt to be

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[6] See www.afdb.org/fileadmin/uploads/afdb/Documents/Environmental-and-Social-Assessments/Maroc_-_Projet_de_construction_du_complexe_portuaire_Nador_West_Med_%E2%80%93_PCR_-_OITC_%E2%80%93_03_2015.pdf, accessed 28 December 2017.

inclusive. Its members include four Namibian ministries, the Road Authority, the Namibian Ports Authority (NAMPORT), the Walvis Bay municipality and six business, logistics and transport associations. Non-Namibian companies are permitted an associated status, which is indicative of the measure of control that the Namibian state prefers to retain.[7] By contrast, ALCO was established by the five states along the corridor with the support of the World Bank and UNAIDS, and with additional input from ECOWAS, UEMOA, USAID, the Global Fund and other international organizations.[8] Unusually, AIDS and malaria prevention has shared the limelight with trade facilitation, which reflects some donor preferences. Importantly, ALCO remains an intergovernmental initiative, with no direct input from the private sector.[9] It has, however, engaged with the West Africa Trade Hub, which was established as an initiative of USAID. Over several years, the Hub generated valuable field data on checkpoints and bribes demanded per kilometre along the corridors. Although USAID funding for this work has now ceased, the Borderless Alliance continues to provide a forum through which state agencies and private businesses can work together to minimize transport delays.

In East Africa, the pattern is somewhat similar. The Northern Corridor Transit and Transport Coordination Authority (NCTTA) is operated by the Ministries of Transport in the member countries. The input of the private sector is confined to a Stakeholders Forum that convenes from time to time.[10] However, TradeMark East Africa (TMEA), a non-profit organization, has served as the conduit for much of the donor funding that has gone into the construction of roads and one-stop border posts (OSBPs). TMEA has been closely involved in upgrading computer systems for Customs and promoting trade facilitation. It also acts as something of a lobbyist for the private sector, promoting the interests of corporate actors and small-scale traders alike.[11] The overall pattern, therefore, is one in which state agencies have remained in control, but have looked for common ground with non-state actors that have stakes in trade and transport.

International corporations are playing a critical role in the construction of port facilities, but African governments have resisted any move towards wholesale privatization. At Walvis Bay, a decision was taken to upgrade the existing port with a large tranche of funding from the AfDB, but without any private sector involvement. The solid governance record of the Namibian state, and the relative efficiency of the port, made the AfDB more than usually accommodating (African Development Bank 2013). In this way, the Walvis Bay port was retained firmly within the public domain, although the actual construction was put out to tender.

In most cases, governments have established port authorities (PAs) that are granted a high degree of autonomy and maintain overall regulatory oversight. It is customary to distinguish between three models of port management: namely, landlord ports, in which the infrastructure (berths, docks and roads) is owned and operated by the PA, while the superstructure (cranes, sheds and so on) is owned by private operators; tool ports, in which private companies manage the infrastructure and superstructure on behalf of the PA; and service ports, in which the PAs remain fully in control of operations (Trujillo and Nombela 1999, 11–12). In a survey of trends up to 2010, the AfDB indicated that the landlord model found little favour, and was confined to Ghana and Nigeria. Versions of the service port were very common across Africa, but with concessions often granted to private companies to manage part of the operations (African Development Bank 2010, 82–85). In that way, the PAs managed to retain ownership of the

7 See www.wbcg.com.na/members/our-members.html, accessed 28 December 2017.

8 See www.corridor-sida.org/?Institutional-arrangement, accessed 28 December 2017.

9 Interview with Edy K. Anthony, Abidjan–Lagos Corridor Group, Cotonou, 21 August 2017.

10 See www.ttcanc.org/page.php?id=16, accessed 28 December 2017.

11 See www.trademarkea.com/who-we-are/our-organisation/, accessed 28 December 2017.

hard infrastructure. In recent years, new container terminals have been leased as concessions to corporate giants such as Dubai Port World (DPW) and Bolloré.[12]

However, governments have also driven hard bargains. A case in point is the port of Djibouti, which granted the concession for a new container terminal to DPW before revoking it in 2014.[13]

In Tema, a hybrid configuration is unfolding. The current expansion project entails the investment of $1.5 billion to construct a port that will be equipped to handle container ships that are three times the size of those currently using the facilities.[14] The container port is operated by Meridian Port Services (MPS), a joint venture between the Ghana Ports and Harbours Authority (GPHA) and Meridian Port Holdings, in which APM Terminals (part of the Maersk group) and Bolloré are the main shareholders. Therefore, the GPHA has not relinquished control; rather, it has sought to remain fully embedded in port management.

The AfDB attributes governments' reluctance fully to privatize port operations to their desire to use the income from the ports to cross-subsidize other sectors (African Development Bank 2010, 84). But there is another consideration: namely, in the context of regional integration, Customs revenues are attributed to the country of final destination for imports. This comes at the expense of the countries that own the ports. In Ghana, a representative of a major international organization confided that while the incoming Kufuor government loudly trumpeted its plans to improve operations at Tema, the assumption is that the port's principal purpose is to generate revenue. In his view, Tema is, to all intents and purposes, a tool port, subordinating operational efficiency to the revenue imperative.[15] In many countries, ownership is a politically charged issue that ties the hands of government. In Kenya, rumours that the authorities planned to privatize the port of Mombasa caused an uproar that led to a hasty retreat in 2012. The government subsequently announced that a newly built second container terminal would be operated by a private company after a competitive tendering process. In 2016, the tendering was itself suspended following legal challenges and claims of questionable dealing, as a result of which the Kenya Ports Authority assumed direct control of the terminal.[16]

In contrast with the ports, governments exhibit less sensitivity about railways, many of which are being constructed and upgraded with external financing and operated by private companies. Governments seem to view more efficient railways as crucial elements in improving trade flows rather than milch-cows in their own right. Roads are different again in that there is an increasing tendency for construction and maintenance to be contracted out to private companies that assume responsibility for particular sections. Although there is a proliferation of tollbooths along the transport corridors, such as ALCO, these do not, in themselves, generate any financial rewards for the state, which can therefore afford to be more sanguine about hiving off de facto control.

Finally, although Customs ostensibly has little to do with big infrastructure, physical enlargement of the seaports and the construction of OSBPs are closely associated with upgrades to information systems and the respacing of Customs work with donor support. Customs

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12 DPW, based in the Emirates but a truly global operator, took over a concession for the existing container terminal in Dakar in 2007. It also held the concession at Djibouti port between 2000 and 2011, when the arrangement was terminated, as well as concessions in Algiers and Maputo. Bolloré holds a concession at Douala and leads a consortium for a terminal at Kribi, which is not yet operational. Other significant players are AP Møller (for Walvis Bay, Luanda, Lagos and Tema) and Hutchison (for Dar es Salaam). Bolloré is involved at some level in the management of all the major port developments in West Africa.

13 DPW claims to operate more than sixty terminals on six continents. It has taken the Djibouti government to court over this issue.

14 See www.maersk.com/en/the-maersk-group/about-us/publications/group-annual-magazine/2015/west-africas-next-generation-ports, accessed 28 December 2017.

15 Interview with a representative of international organization (name withheld), Accra, 28 August 2017.

16 I am grateful to Hugh Lamarque for pointing me towards press coverage of this affair.

reforms are part of a global trend, and reflect the fact that almost all African countries are members of the World Customs Organization (WCO) and have either already joined, or are in the process of entering, the World Trade Organization (WTO). This, in itself, presupposes compliance with international norms and procedures. Whereas most countries have historically been characterized by rather limited integration between government agencies, the shift towards variants of single window means that it is possible for various agencies within a single country to access the same computer records. This is being strongly driven by an integrated border management (IBM) agenda (Siva 2011), but it has implications for other branches of the bureaucracy (Nugent 2016). At the same time, IBM is supposed to facilitate the sharing of data across borders, which is a challenge because of language differences and entrenched institutional cultures. As many countries have migrated to versions of the ASYCUDA (Automated System for Customs Data) Customs system, which is championed by UNCTAD, revenue authorities are increasingly able to access one another's entries (Cantens *et al*. 2010). For imports transiting through Mombasa, a single Customs entry is made in the country of final destination, which may be Rwanda or Uganda. Along with the rolling out of an electronic cargo tracking system (ECTS) in 2017, this circumvents the need for physical inspection of transit goods and thereby contributes to an overall reduction in delays.

This is also a domain in which states are actively seeking to reclaim the agenda. In a number of countries, aspects of Customs work – most notably valuation and inspection – were initially subcontracted to international companies in the name of greater efficiency (Chalfin 2010, 107–108, 171–184). At the same time, Customs departments in many countries were restructured and folded into semi-autonomous revenue authorities (RAs). There were fourteen of these RAs in 2009, mostly of them in Anglophone countries, with more expected to follow (Fjeldstadt and Moore 2009, 2). A recent trend has been for RAs to claw back control of valuation from private companies and to centralize their activities in the capital city. This restructuring was implemented in both Uganda and Ghana in 2017.[17] The centralization of Customs operations conforms to a larger pattern in which states seek to remain in the driving seat. Given that RAs furnish the revenues that enable the rest of the state to function, this has the potential to give them a much greater voice within the state bureaucracy. This, in turn, has implications for the extractive industries, given a context in which there is much debate about whether mining companies are paying their way.

This brings us to the second question of whether the infrastructural big push is helping to enhance the administrative performance of African states. One critique of 'neoliberal governance' reforms is that they risk creating islands of effectiveness amidst large swathes of institutional incoherence. Here I will confine myself to a consideration of performance along the transport corridors and the implications for the extractive industries. The re-enchantment with railways is relatively recent, and as yet there is insufficient evidence to judge whether there has been a significant improvement – although, given the decrepit state of the existing networks, one would expect fresh investments to bring rapid returns. I will therefore focus on long-distance trucking routes and seaports. In each case, a great deal of donor effort has gone into calibrating the effects of infrastructural improvements on transit times – and hence on transport costs. The data that is freely available presents a mixed picture.

The condition of the roads along any corridor clearly affects journey times, but one of the greatest impediments has been the quality of the border crossings, where literally creaking infrastructure (degraded roads and bridges) and duplicated border formalities have led to lengthy delays along the main trucking routes. A case in point is the section of corridor between the Congolese/Zambian Copperbelt and the port of Durban. The crossing from the DRC to

[17] These observations are based on fieldwork in Ghana in August 2017 and Uganda (with Isabella Soi) in October 2017.

Zambia Kasumbalesa is notoriously slow, and it has been repeatedly blockaded by drivers protesting against chronic insecurity. There have also been acute delays at Chirundu on the Zambia/Zimbabwe border and at the Beit Bridge crossing between Zimbabwe and South Africa. According to one estimate, a third of the total transport time along the corridor was spent waiting at the border crossings (Curtis 2009, xv). In an effort to address this serious problem, the governments of Zimbabwe and Zambia decided to construct an OSBP at Chirundu, an initiative that was subsequently adopted by COMESA. The OSBP, which was the first of its kind in sub-Saharan Africa, became partly operational in 2007 and was formally opened in 2009. At that point, it took a vehicle thirty-nine hours to transit northbound and fourteen hours to move southbound through Chirundu (Curtis 2009, 20). At Beit Bridge, the equivalent delays were thirty-four and eleven hours, respectively. Assessments indicated that some of the most stubborn challenges related to coordinating the activities of around twenty government agencies on the two sides of the border, sharing Customs information and persuading officials that greater efficiency was in their best interests (OECD/WTO 2011, 7–8). After several years, the flow of traffic through Chirundu improved, with copper accounting for most of the southbound traffic. However, in 2017, there were reports of vehicles stranded at Chirundu for days amidst allegations of corruption and bureaucratic obstacles. In West Africa, a series of OSBPs has been constructed along ALCO, but they are standing empty because officials on either side have not been able to agree on the modalities for opening them. There have been some improvements to crossing times since 2014, but from a very low base: for example, the average time for a truck crossing from Kraké in Benin to Seme in Nigeria fell from sixty-three to twenty-seven hours between 2014 and 2016 (ALCO 2016). As in Chirundu, border officials who have not bought into the official rhetoric on the advantages of the frictionless border have found ways to slow down the system.

The greatest successes have been chalked up in East Africa, along the Northern and Central Corridors, which, as I have indicated, are of marginal significance to the extractive industries. The lessons here are that the involvement of external actors in the design of OSBPs may facilitate coordination between state agencies. TMEA has been involved in the construction of thirteen OSBPs, ten of which are now complete. The landlocked states of Rwanda and Uganda have displayed particular interest in creating purpose-built facilities and rendering clearance procedures as smooth as possible, whereas in Kenya there has been much greater institutional competition and bureaucratic inertia. Along the Northern Corridor, the Malaba and Busia OSBPs are operational on a twenty-four-hour basis, but the inherited infrastructure and institutional communications on the Kenyan side are noticeably less conducive to making rapid strides. Where the OSBPs have become fully operational, the results have been significant. At Busia, the long queues of trucks that were apparent in 2014 had largely disappeared by 2017. In 2011, the average crossing time at Busia was 14.3 hours, but this had been reduced to just 3.6 hours by 2017 (Soi and Nugent 2017, 546–547). An even more dramatic improvement was recorded at the Mutukula OSBP on the Uganda/Tanzania border, which was formally opened by the two countries' presidents in November 2017.

At the ports, the picture is somewhat similar. Many of the PAs have been accused of chronic inefficiency and everyday corruption, and they have come under government pressure to boost their performance. These days, most PAs post online statistics on volumes of cargo handled and waiting times, so progress may be monitored and port trajectories compared. A number of ports have produced evidence to back up their claims of improved performance. The website of the port of Djibouti, for example, claims an increase in container traffic from 424.9 thousand TEUs in 2010 to 910.2 thousand TEUs in 2015. Over the same period, it reported that non-containerized traffic almost doubled.[18] The port of Mombasa similarly claims a substantial

[18] See www.portdedjibouti.com/statistics/, accessed 28 December 2017.

increase in container traffic – from 770.8 thousand TEUs in 2011 to 1.1 million TEUs in 2015.[19] While the advocates of state withdrawal from port management maintain that the current arrangements remain sub-optimal, the evidence of incremental improvement means it is easier to make the case for continued public control. Clearly, though, qualitative shifts in the performance of seaports and OSBPs alike will depend on transforming institutional cultures – and this still has some way to go. While the RAs have seen some significant changes in the way staff relate to their work in a country like Uganda or Ghana, it is the most laggardly agency that typically dictates the pace at the ports and the OSBPs. Moreover, the experience of many of the OSBPs is that better flows at the border crossings are often accompanied by a proliferation of informal checkpoints – erected by the police and a range of other state agents – along other sections of the corridors. This has the effect of simply transplanting the transport delays to different locations.

Finally, it should be mentioned that there is a risk of African countries overreaching themselves at a time when the global economic environment is no longer particularly favourable. Although regional integration initiatives are proceeding apace, it is difficult to point to a coordinated regional strategy when it comes to big infrastructure. On a more modest scale than in South-East Asia, but following a similar zero-sum logic, governments seek to entice trade to their ports to the detriment of their neighbours (Fau 2014, 58–63). Some irony resides in the fact that, while the coastal states are making the greatest investments, the landlocked countries are incurring fewer risks and reaping more of the benefits as a consequence. On the one hand, as part of the creation of free-trade zones and the imposition of a Common External Tariff (CET), the poorer landlocked countries receive manufactured goods at lower costs as well as Customs revenue on imported goods. On the other hand, the competitive investment in ports and railways enables them to shop around for the best deals, potentially leaving the littoral states high and dry. As I have indicated, most of the copper from Zambia and southern DRC travels to the seaports by road. The expansion of the port of Durban is intended to consolidate the niche that it has carved for itself. However, at the same time, the bridging of the Zambezi River and the promotion of the Walvis Bay–Ndola–Lubumbashi Development Corridor, as it is now called, is intended to provide an alternative outlet to the sea. The governments of Zambia, the DRC and Namibia have formally committed themselves to promoting this corridor as a conduit for materials used in mining and for the export of copper.[20] Yet, the Congolese authorities have also been receptive to plans to develop the Angolan port of Lobito as an alternative outlet for their exports. Therefore, *three* expensive port developments are pinning their hopes on assumptions about the direction that copper exports will take in the future. Similarly, the ports of Abidjan, Tema, Lomé and Cotonou are formally partners in ALCO, but they stand in a competitive relationship with respect to the transit trade with the landlocked countries of the Sahel.

Another striking example is LAPSSET (the Lamu Port–South Sudan–Ethiopia Transport Corridor), which Kenya has been aggressively promoting. It is supposed to cater to the landlocked countries of Uganda, South Sudan and Ethiopia and to promote development in the poorest parts of northern Kenya by means of rail, road, air and fibre-optic-cable links. The centrepiece is a new port at Lamu that a Chinese company is constructing. However, Ethiopia has already chosen to prioritize a new rail link to the port of Djibouti, possibly because it is less susceptible to terrorist attacks by al-Shabaab. To compound matters, the projected oil

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19 See www.kpa.co.ke/InforCenter/Performance%20Reports/KPA%20Annual%20Report%202015%20(without%20photos).pdf, accessed 28 December 2017.

20 See www.wbcg.com.na/news-info/news/detail//developing-the-walvis-bay-ndola-lubumbashi-development-corridor/home-page.html, accessed 28 December 2017.

pipeline from northern Uganda to Lamu has been abandoned in favour of a route to the port of Tanga in Tanzania. With the latter country also planning to open a new port at Bagamoyo, Kenya's heavy investment in seaports suddenly seems to be a dangerous gamble. The downstream consequences of overreach are apparent when one recalls that African governments channel many of their scarce resources into infrastructural development. Indeed, one recent study suggests that African governments fund as much as 65 per cent of infrastructural expenditure from the general budget (Guttman *et al*. 2015, 3). This inevitably means that resources are diverted away from competing priorities, such as urban water supply and power generation, which may be more pressing needs. Kribi has often looked like turning into a white elephant, although it will probably come to fruition – albeit at great expense and long behind schedule – because of its strategic importance to neighbouring countries. However, the port of Lamu seems unlikely ever to pay its way, and many other infrastructural investments may go the same way in the future.

Conclusions

In this chapter, I have addressed two fundamental issues concerning infrastructural investment in Africa. First, I have mapped the changing patterns as well as the principal actors, with a view to assessing how far the needs of the extractive industries are driving and shaping investment flows. It is striking that investments in big infrastructure – especially in seaports and railways – are back in vogue amongst donors, investors and African governments alike. One significant finding is that African governments finance much of the infrastructure both directly and through loans. Another is that, whereas the oil and gas sector has tended to benefit from investments in pipelines across the regions, the ability of mining to shape infrastructural provision has varied considerably. Some transport corridors, most notably in East Africa and coastal West Africa, are geared towards facilitating the flow of imported and domestically produced commodities rather than easing the export of minerals. It is really only in Southern Africa and parts of West Africa that infrastructural investments are driven by mining logic.

Second, I have weighed up the implications of the infrastructural 'big push' for the ability of African governments to shape the agenda and for the capacity of bureaucracies to undertake their (partially reconfigured) functions. African governments have retained a surprising degree of control over the process, as is reflected in the stubborn persistence of PAs and public management of the transport corridors. Through a closer examination of OSBPs and seaports, I have concluded that the record of bureaucratic implementation remains patchy. Although performance indicators mostly point to demonstrable improvements, the patterns are highly uneven, especially with respect to OSBPs. The results have been encouraging where there has been significant harmonization of information systems and procedures, and where a range of state agencies has displayed commitment to the process of reform. East Africa is forging ahead by comparison with the other regions. However, across much of the continent, the big infrastructure is still waiting for the rest of the institutional bandwagon to catch up. Be that as it may, I have found little evidence to support the claim that 'infrastructuring' has contributed to greater institutional coherence, even though a bewildering array of actors is now involved.

Finally, I have concluded this chapter on a cautionary note. Precisely because infrastructural investments are not driven by a purely extractive logic, they are more likely to proceed apace irrespective of lower commodity prices. But herein lies a danger that African countries will overreach themselves and be saddled with a series of white elephants that will be held under state ownership. It would be profoundly ironic if history ended up repeating itself.

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